REMARKS

This amendment is responsive to the Office action mailed September 7, 2004 for the above-captioned application.

- The specification has been objected to for failing to provide antecedent basis for claimed subject matter.
- Claims 9 and 10 are canceled.
- No claims are added.
- No claims are amended.
- Claims 1-8 and 11-13 remain pending.

The specification has been objected to as failing to provide antecedent basis for claimed subject matter. The examiner indicates that the claims would be allowable once a lack of antecedent basis is corrected.

Claims 1, 5, 9, 11, and 12 are in independent format. The examiner has not cited any objections to the specification concerning the subject matter of claim 11. Accordingly, it is respectfully requested that claim 11 be allowed.

The examiner cites a lack of antecedent basis regarding subject matter in claims 1, 5, 9, 12 and 13. Claims 9-10 have been canceled. The objection to the specification with regard to the subject matter of claims 1, 5, 12 and 13 is respectfully traversed. Antecedent basis for the subject matter of claims 1, 5, 12 and 13, cited by the examiner, is discussed below.

Claim 1:

The examiner asserts that there is no antecedent basis for the claim limitation, "a signal source responsive to the background light which varies a wavefront curvature of the image to correlate a focal distance to the background light."

It is respectfully submitted that support for this claim limitation is found in the specification at page 17, line 29 through page 18, line17, and at Fig. 21. A sensor 72 detects distance of a

focal viewing point of background image light, (Spec. at page 17, lines 29-30). A controller 174 with the sensor 172 generates a signal 178 for controlling the apparent distance of a virtual object, (Spec. at page 17, line 32 to page 18, line 2). Thus, the controller 174 and sensor 172 provide antecedent support for the "signal source responsive to background light."

The control signal is input to a variable focus lens 22 to adjust the curvature of light waves forming the virtual image light, (Spec. at page 18, lines 2-4). Thus, the signal source is responsive to background light to vary wavefront curvature of the image.

A virtual image is generated having an apparent distance that is correlated to a real world image, and more particularly, to a real world image distance, (Spec. at page 18, lines 13-15). Thus, the wavefront curvature is varied to correlate focal distance to the background light."

The passage in the specification at page 17, line 29 through page 18, line 17 describes a sensor that detects background light. A controller uses the sensor output to control a variable focus lens. The variable focus lens varies the curvature of image light. The focal point of the image light is correlated to the detected background light to overlay or underlay the virtual image to a corresponding background image area. Accordingly, antecedent support for the subject matter, "a signal source responsive to the background light which varies a wavefront curvature of the image to correlate a focal distance to the background light," is found in the specification.

Claims 2-4 depend from claim 1. Withdrawal of the objections to the specification with regard to the subject matter of claim 1 is respectfully requested.

Claim 5:

The examiner asserts that there is no antecedent support for the claim limitation, "a control signal which adjusts the lensing system to achieve a first wavefront curvature of the exiting light during a first portion of a field of view and to achieve a second wavefront curvature during a second portion of the field of view."

It is respectfully submitted that support for this claim limitation is found in the specification at

page 6, lines 8-9, lines 15-18, and lines 24-26; page 11, lines 31-32; page 13, lines 25-27; and page 15, lines 14-18).

The lensing system includes in several embodiments a variable focus lens. The light passing through the eyepiece has its curvature varied over time based upon the control of the variable focus lens 22, (specification at page 6, lines 8-9). The variable focus lens operates at frequencies fast enough to focus each element of an image, (specification at page 13, lines 25-27). A control signal is input to the variable focus lens to alter the focal length of light passing through the lens. Specifically, at page 18, lines 2-4, a control signal is recited as being input to the variable focus lens to adjust curvature of the light waves. The control of the variable focus lens also is described for several embodiments at pages 11, line 10 to page 13, line 7. Accordingly, there is antecedent support for the subject matter, "a control signal which adjusts the lensing system to achieve a wavefront curvature."

At page 6, there is a recitation of the curvature of light changing over time to control apparent depth of image elements. The curvature of the generated light waves relates to the desired, 'apparent distance' (i.e., focus distance) between a virtual object and the eye, (specification at page 6, lines 21-22). Varying the image depth is perceived for differing portions of the scanned image, (specification at page 6, lines 23-25). Specifically, "[f]or a first image element 26 the corresponding light 28 has one curvature. For another element 30, the corresponding light 32 has another curvature," (specification at page 6, lines 15-16). Thus, there is a first wavefront curvature for one image portion and a second wavefront curvature for a second image portion. By controlling the curvature, the display controls the apparent focus of the eye, and thus causes different image elements to appear to be located at different distances, (specification at page 5, lines 18-25). Accordingly, the specification provides support for the claimed subject matter of claim 5.

Claims 6-8 depend ultimately from claim 5. Withdrawal of the objection to the specification is respectfully requested for the subject matter of claim 5.

Claim 12:

The examiner asserts that there is no antecedent support for the claim limitation, "a signal

source which varies wavefront curvature of the exiting light to position a first virtual object at a first apparent distance and to position a second virtual object at a second apparent distance."

It is respectfully submitted that support for this claim limitation is found in the specification at page 17, line 29 through page 18, line17; page 6, lines 8-9, lines 15-18, and lines 24-26; page 11, lines 31-32; page 13, lines 25-27; and page 15, lines 14-18). Note that the support for the limitations of claims 1 and 5 discussed above also provide support for much of the language in the limitation for claim 12.

A sensor 72 detects distance of a focal viewing point of background image light, (spec. at page 17, lines 29-30). A controller 174 with the sensor 172 generates a signal 178 for controlling the apparent distance of a virtual object, (spec. at page 17, line 32 to page 18, line 2). The signal is input to a variable focus lens to adjust the curvature of the light waves forming the virtual image light, (specification at page 18, lines 2-4). Thus, there is support for the claim language, "a signal source which varies wavefront curvature of the exiting light."

Support for positioning a first virtual object at a first apparent distance and a second virtual object at a second apparent distance now is discussed. For an augmented scanning beam display embodiment, a virtual image is formed of virtual two-dimensional or three-dimensional objects which are placed within a perceived two-dimensional or three-dimensional background image environment, (specification at page 15, line 32 to page 16, line 2).

To simulate an object at a far distance the light waves transmitted from the display to the eye are flat, (specification at page 16, line9-10). To simulate closer objects, the light wave curvature increases, (specification at page 16, line 10). The curvature of the generated light waves relates to the desired, 'apparent distance' (i.e., focus distance) between a virtual object and the eye, (specification at page 6, lines 21-22). Specifically, "[f]or a first image element 26 the corresponding light 28 has one curvature. For another element 30, the corresponding light 32 has another curvature," (page 6, lines 15-16).

In some embodiments multiple sensors are included for measuring background distance for

many points within the background viewing field, (page 18, lines 5-7). The measuring points correspond to differing areas within the field of view, (page 18 lines 7-8). The measured distance for a given area is used to specify a distance for a virtual object to be overlaid upon the corresponding image area, (page 18, lines 9-10). Thus, one object can be positioned at one distance in one image area, and another object can be positioned at another distance in another image area. Accordingly, there is support for positioning a first virtual object at a first apparent distance and positioning a second virtual object at a second apparent distance.

Withdrawal of the objection to the specification is respectfully requested for the subject matter of claim 12.

Claim 13:

Claim 13 depends from claim 12. The examiner asserts that there is no antecedent support for the claim limitation, "a signal source responsive to detected depth which varies wavefront curvature of the image light for the first virtual object to correlate the first apparent distance to a first detected depth of the background light and which varies the wavefront curvature of the image light for the second virtual object to correlate the second apparent distance to a second detected depth of the background light."

It is noted that the subject matter of claim 13 addressed by the examiner is similar to that of claim 12, while adding that the virtual objects are focused at apparent distances corresponding to depths detected in the background.

Support for focusing the virtual objects at the detected depths is found in the specification at page 18, lines 5-10. As discussed above with regard to claim 12, in some embodiments multiple sensors are included for measuring background distance for many points within the background viewing field, (specification at page 18, lines 5-7). The measuring points correspond to differing areas within the field of view, (specification at page 18 lines 7-8). The measured distance for a given area is used to specify a distance for a virtual object to be overlaid upon the corresponding image area, (specification at page 18, lines 9-10). Thus, one object can be positioned at one measured distance in one image area, and another object can be positioned at another measured distance in another image area. Accordingly, antecedent

support is provided in the specification for the subject matter of claim 13.

Withdrawal of the objection to the specification is respectfully requested for the subject matter of claim 13.

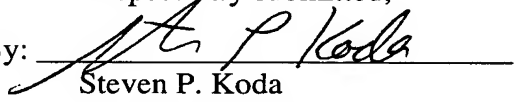
Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the claims are now in condition for allowance. The Examiner's action to that end is respectfully requested. Reconsideration of the claims and withdrawal of the objections is respectfully requested.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the application, the Examiner is invited to call the undersigned attorney at the telephone number given below.

Respectfully submitted,

Dated: 11-22-04

By: 

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